4 & S	EPA .	(Callected under Water Act, Se	the authority of ctions 1421, 14	CATION the Safe Drin 22, 40 CFR 14	ROL king 4)	u	ID NOMBER			T/A	0
		READ A	FOR OFFIC	CIAL USE ON	ORE START	ING					
mo day year	mo day year	Permit/We	all Number				Comments				_
		EPU 59-I	,								-
II. FACILITY NAMI	E AND ADDRESS	ALC: MARKET		III. OWN	R/OPERAT	OR AND	ADDRESS S			def i.	•
Facility Name				Owner/0	perator Na	ne			-4.000.31		2
East Popla	r Unit	**************************************			hy Oil	USA,	Inc.		1965		
P. O. Box	547			Street Ac	Peach S	treet					
City	4.		ZIP Code	City				State	ZIP Code	9	-
Poplar IV. OWNERSHIP S	STATUS (Mark 'x')	MT	59255	V. SIC CO	orado	. Exercises	Total Sealings	AR	7173	0	
			Same and the state of the state	V. SIC CO		#138 F. T.		5 995815			÷
A. Federal	B. State	C. Private			1311			3 8 3 1			
D. Public	E. Other (Explain	1	A								
VI. WELL STATUS		(中国)					ke turpis.				10
E A	mo day year	B. Modificatio	n/Conversion	C. Propo	sed						
Operating	6 11 61	Permitting	g Existing	Well App	roved b	y Rule	2				
VII. TYPE OF PERM	MIT REQUESTED (M			4			NAME OF	57520	LAST TO	建筑	E
A Individual		Number of Exist- ing wells	Number of Pro- posed wells		field(s) or p Poplar U						
A. Class(es) (enter code(s))	B. Type(s) (enter code(s))	C. If class is "othe	r" or type is cod	le 'x,' explain	D.	Number	of wells per t	ype (if area	permit)		
11-D						*					
	WELL(S) OR APPRO	XIMATE CENTER	OF FIELD OR PE	OUECT SEE	C orthograph C		V INDIANA		Linear		91
A. Latitude	B. Longitude	Township and	Range			1	A. INDIAN LA	NUS (Mark	x) 650	50250	4
Deg Min Se	c Deg Min Se	c Twsp Range S 28N 51E 4	ec 1/4 Sec Feet NW 19		Feet from 732	Line W	X Yes	□ No		1.00	
XI. ATTACHMENTS	s Francisco				132	25 25 25 25	3 m. pin 19 m.	A PERSON	NO FOR	- A	7
(Complete t	the following qu	estions on a se	parate sheet	t(s) and nun	ber acco	rdingly:	see instru	ctions)	The State of		3
FOR CLASS	SES I, II, III (and o	other classes) c	omplete and	submit on s	enarate e	haatlel	Assash-		(pp 2-6)	las	
your applica	. Attach maps v	where required	. List attachr	nents by le	ter which	are ap	plicable ar	nd are inc	luded w	vith	
	'A, -D,	G, H, M, C	R, and I	J.,		•					
CII. CERTIFICATION	NAME OF TAXABLE PARTY.	AND VENEZUE	and the state of the state of			NAC:				17.39	7
minorinatio	on submitted	III WIIS GOCU	ment and :	all affach	monte o	nd the	+ hannd				
informatio	ividuals imm on is true, acc	curate, and o	omnlete I	am awar	ng the	inforn	nation, I	believe	that t	he	
submittin 144.32)	g false inform	nation, inclu	ding the po	ossibility	of fine a	nd im	e signific orisonm	ent. (Re	f. 40 C	for FR	
A. Name and Title (Type or Print)		Deal	146			10.00	N		144 5	_
GLENN M. F	EDDERSON	Vice Presi	The second secon	/ 400 8			501	/862-64	11	d No.J	
C. Signature -	V///			· ·			D. Date / 2/	Signed			-
A Form 7520-6 (2	2-84)						100	1/84			
1020-012	241							/	p	lane 1	



TATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, DC 20460

PEPA	COMPLETION FORM FOR INJECTION WEL
	ADMINISTRATIVE INFOCULATION

	ADMINISTR	ATIVE INFORMATION				
1. Permittee			LITTLE HERE			
Murphy 011 USA, Inc.						
Address (Permanent Mailing Address) (Stre P. O. Box 547, Poplar, Monta 200 Peach Street, El Dorado,	na 59255 (Distr	rict Office)				
2. Operator						
Murphy Oil USA, Inc.						
Address (Street, City, State, and ZIP Code)		11/2				
Same as above						
3. Facility Name			Telephone Number			
East Poplar Unit 59-	D		District Office	406-768-3611 501-862-6411		
Address (Street, City, State, and ZIP Code)		3202				
Murphy Oil USA, Inc. (Distri P. O. Box 547 Poplar, Montana 59255	ct Office)					
4. Surface Location Description of Injection V	Veik(s)					
State		County				
Montana		Roosevelt				
¼ of	1/4 of		1/4 section	- 1/2		
	SW .		NW 4	* * * * * * * * * * * * * * * * * * * *		
Township		Range		A = 1871-11		
28N		51E				
Feet from (N/S)	The second of	Line of quarter section	n and	1		
1911		N				
Feet from (E/W)	Line of quarter section					

Submit with this Completion Form the attachments listed in Attachments for Completion Form.

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment, (Ref. 40 CFR 144.32).

	-		
GLENN M. FEDDERSON	Form	SIGNATURE	 DATE SIGNED
Vice President		VV	12/4/84

732'

ATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, DC 20460

Form Approved OMB No. 2040-0042 Approvel expires 9-30-86

Murphy Oil 200 Peach	St.	EPU 59-D	Submarg BIA Poplar,	inal La	ind	VNER	
14		STATE COUN				PERMIT NUMBER	R
SECTION PLAT -	D OUTLINE UNIT ON - 640 ACRES	MT Roc	sevelt		art 19		
	N	SURFACE LOCATION	DESCRIPTION .				
			O DIRECTIONS FROM		LINES OF QU	TOWNSHIP 28 N PARTER SECTION AND I	RANGE 51E
	++++		rom (N/S) N Line of qu				
		WELL ACTIV		TYPE OF			
		K Brine Dispo	_			Estimated Fractu	ira Prassura
*	E	Enhanced R	ecovery Are		1		2444 psig
1 ! ! !		Anticipated Daily Inje		or trons_	Injection In	recyal	
		Average	Maximum		Feet .	to Fe	**
		Not In Use	- Announ			3264	3342
1 1-1		Anticipated Daily Inje	ction Pressure (PSI)	-	Depth to B	ottom of Lowermost Fre	
	5	Average	Maximum		(Feet) Bu	d Lien's Deep	pest Well
Type of I	Injection Fluid (Check the appro	priate block(s))	Lease Name EPU			Well Number 59-D	
Liq	uid Hydrocarbon	Other .	Name of Injection		4		The same
ate Orilling Segan	Date Wei	Completed .	Permeability of I	njection Zon			
5-23-55	8-8-5	55			Data	Not Available	e ·
late Orilling Complete	ed		Porosity of Inject	tion Zone			
7-16-55					Data	Not Available	e
	CASING AND TUBING			CEMENT			OLE
OD Siza	Wt/Ft - Grade - New or U		Sacks		Class	Depth	Sit Diameter
13 3/8	48# H-40 New	145.85 '	200	G?		150'	1.71/2
9 5/8	36# H-40 New	948.83 ' '	400	G?		965	121/4
5 1/2	15.5# J-55 New	5741.36	300	G?		57541	8 3/4
		Squeeze	450	G?		3149 '& 3400	
2 7/8	6.5# J-55 New	3160'					
						- 10	
	INJECTION ZONE STIMULAT				RE LINE LOG	S, LIST EACH TYPE	
Interval Treated 3264-3365	1500 gals mud	Amount Used		og Types			Intervals
7204-3303	TOO Rats mad	actu	Elect Sur			962' - 5753	
			Elect Sur			2000'-5753"	
			Microlog			2000'-5751'	
			Microlog	25"		5000'-5751'	
	-						
omplere Arrest	THE A. C.	The State of the S					1
omplete Attachme	ents A — E listed on the rev		TIFICATION				
submit	y under the penalty of tted in this document liately responsible for mplete. I am aware the	law that I have per and all attachmen obtaining the infor	sonally examin its and that, ba mation, I believ	sed on i	my inquir	ry of those indivi- ation is true, acc	iduals urate,
the pos	ssibility of fine and im	prisonment. (Ref. 4	O CFR 144.32).				
AME AND OFFICIAL	TITLE (Please type or print)		1			DATE SIGNED	

EPA Form 7520-10 (2-84)

Vice President

GLENN M. FEDDERSON

Form

NAME AND ADDRESS OF PACELLY MUTPHY OLI USA, Inc. Poplar, Montama EPU 59-D STATE COUNTY MITCH SALE NO OUTLINE UNIT ON SECTION PAIT - 640 ACRES STATE SUPPACE LOCATION SECRIPTION WELL AND OUTLINE UNIT ON SECTION PAIT - 640 ACRES MITCH SUPPACE LOCATION SECRIPTION WELL ACTIVITY LOCATE WELL AND OUTLINE UNIT ON SECTION PAIT - 640 ACRES MITCH SUPPACE LOCATION SECRIPTION WELL ACTIVITY LOCATE WELL IN TWO DIRECTIONS FROM MEAREST LINES OF QUARTER SECTION AND ORILLING UNIT SUPPACE LOCATION SECRIPTION WELL ACTIVITY CLASS II CLASS I	8	EPA			LUC	GING /		ANDONI	ME PI	AN			
STATE COUNTY DEFORM PLATE - 940 ACRES SUPPLY SUPPL	NAME. M	AND ADDRESS OF FA	A, Inc.		EPU	59-D	Murph	y. 011 USA	, Inc.		1730		
SECTION PLAT - 540 ACRES NT		•		-	STATE	COUNT		cacii ber,	DI DOLG				
NE 14 OF SIL MOP NM ASECTION 4 TOWNSHIP 28N ANAGE \$50. LOCATE WELL IN TWO DIRECTIONS PRIGM NEAREST LINES OF QUARTER SECTION AND ORILLING UNIT Surface 19.11a, from (N/3) N Une of quarter section and 722 n. from (6/4) N Une of quarter section TYPE OF AUTHORIZATION WELL ACTIVITY Class I CLASS I CLASS I CLASS II Rease Name EPU Well Number of Wells L Staffine Disposal Clehansed Recovery Class of Grant Plug Sill Staffine Disposal Clehansed Recovery Class of Class Sill Staffine Disposal Class Sill Staff												-:	
LOCATE MELLIN TWO DIRECTIONS FROM MEAREST LINES OF QUARTER SECTION AND ORILLING UNIT Surfaces, 2012 in, from (N/S) N Line of quarter section and 732 in, from (N/S) N Line of quarter section TYPE OF ANTHORIZATION Sindividual Permit Rul. Number of Wells Lines of quarter section TYPE OF ANTHORIZATION WELL ACTIVITY CLASS II CLAS II CLAS I	_	N '	1	_				NW W SECT	ion 4	TOWNSHIP	28N RAN	GE SEE	
TYPE OF AUTHORIZATION WELL ACTIVITY CLASS I CLASS I CLASS II CLASS III CLASS II CLASS II CLASS II CLASS II CLASS III CLASS II CLASS II CLASS II CLASS III CLASI CARD CARD CARD CARD CARD CARD CARD CARD	F				LOCATE	WELL IN TWO	DIRECTIONS						
CLASS					and Z	32 ft. from (E.	W Line	of quarter section	on ·				
CLASS II SCHARS	-		+++	1		TYPE OF	AUTHORIZAT	TON		WELLAC	YTIVITY		
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SIZE WILB/FI TO BE PUT IN WELL (FI) TO BE LEFT IN WELL (FI) HOLE SIZE 13 3/8 48		S		_	Lease !	Name EP	U		Well Numb	er 59-1)		
SIZE WILB/FI TO BE PUT IN WELL (FI) TO BE LEFT IN WELL (FI) HOLE SIZE 13 3/8 48		CASIN	G AND TUBING R	ECORD A				METHOD			NT PLUGS		
13 3/8 48# 139.85 17½ The Two-Plug Method Other 9 5/8 36# 942.83 12½ 15,5 # 5735,36 8 3/4 CEMENTING TO PLUG AND ABANDON DATA: PLUG #1 PLUG #2 PLUG #3 PLUG #3 PLUG #5 PLUG #5 Size of Mole or Plop in which Plug Will Be Placed (inches) *5½ 5½ 8*9 5/8 Decth to Bottom of Tubing or Orbit Plop (tt) 3214 Sacks of Cament To Be Used (each plug) 2 10 10 Situry Volume To Be Used (each plug) 3 199 10 20 Messured Top of Plug (if tagged ft) 3199 10 20 Messured Top of Plug (if tagged ft) 3399 10 20 West and to Plug Wells *Cast iron B.P. will be set at 3214' with 2 sacks of cement on top. **3337 3365 4390 3330 3264 3276 Estimated Cost to Plug Wells *Cast iron B.P. will be set at 3214' with 2 sacks of cement on top. **30 337 3365 4390 3330 3264 3276 CERTIFICATION I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)	6176	WILL BLET	TO BE DISTINUA	SI (57) T	OSISETINU	VEIL VED	UOI E CIZE	The Bal	ance Method				
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Size of Hole or Pipe in which Plug Will Be Placed (inches) **5\frac{1}{2} **	_	CEMENTING TO BU	IIG AND ABANDO	ON DATA		DI LIC #1	T 01110 #2	OLUC PA	- muc us	T muc ue	T muc us	1 01110 47	
Oceith to Bottom of Tubing or Orill Pipe (ft.) Sacks of Cament To 8e Plumped (cu. ft.) 2 10 10 Calculated Toe of Plug (ft.) Silurry Volume To 8e Plumped (cu. ft.) Calculated Toe of Plug (ff tagged ft.) Silurny Wt. (Lb./Gal.) Measured Top of Plug (ff tagged ft.) Silurny Wt. (Lb./Gal.) LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (ff any) From To From To From To 3337 3365 4390 3330 3264 3276 Estimated Coast to Plug Wells *Cast iron B.P. will be set at 3214' with 2 sacks of cement on top. \$ 6,000 ***10 sacks cement will be pumped down 5½" csg annulus. Casing will be cut off 6' below ground and a plate welded on top. **CERTIFICATION I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)	Size of								PLUG #4	PLUG #5	PLUG.#6	PLUG #7	
Sacks of Cement To Be Used (each plug) 2 10 10 Slurry Volume To Be Pumped (cu. ft.) 2 10 10 Calculated Too of Plug (ft.) Slurry Wt. (tb./Gal.) Type Cement or Other Meterial (Class III) LUST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any) From To From To 3337 3365 4390 33276 Estimated Cost to Plug Wells **Cast Iron B.P. will be set at 3214' with 2 sacks of cement on top. ***10 sacks cement will be pumped down 5½" csg annulus. Casing will be cut off 6' below ground and a plate welded on top. ***To Sacks cement and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)						-	1			19			
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\$ 6,000 **10 sacks cement will be pumped down 5½" csg annulus. Casing will be cut off 6' below ground and a plate welded on top. CERTIFICATION I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)	3204			3270							A. C. S.		
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I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)		A STATE OF THE PARTY OF THE PAR	*Cast ir **10 sack off	on B. s cem 6' be	P. will ent wil elow gr	be set l be pur ound and	at 3214 mped down a plate	with 2 n 5½" csg welded o	sacks of annulus. on top.	cement Casin	on top. g will be	cut	
NAME AND OFFICIAL TITLE (Please type or pripile of SIGNATURE)		submitted in immediately and complet	n this docum responsible te. I am awar	ment a e for ob re that i	nd all at btaining t there are	have perso tachments the inform a significan	onally exam s and that nation, I be nt penaltie	mined and a based on lieve that the for submit	my inquiry ne informa	of those	individuals		
	NAME	AND OFFICIAL TITLE	Please type or pri	repeal	SI	GNATURE	1		14	DATE SI	GNED /		

Vice President PA Form 7520-14 (3-84)

EPU #59-D

A. Area of Review

Fixed Radius of 1/4 Mile - Field Plat Attached No wells within area of review

E. Name and Depth of USDWs (Class II)

 Depth
 Name
 Local Name

 86'
 Tertiary Sand
 Unknown

G. Geological Data are evoded own.

Zone Upper Confining	<u>Name</u> Skull Creek	Description Gray Shale w/ Traces of Red	<u>Depth</u> 2904 [±]	Thickness 170 [±]	Frac Pressure Unknown
Injection	*Dakota	Silt White, Fine Grain, Porous Sandstone	3070 *	300 [±]	0.74 psi/foot
Lower Confining	Fuson	Dark Gray Shale w/trace of sand	3570±	375 +	Unknown
*The Dakota		lain by the Dakota S			Ela.

H. Operating Data - Currently Not in Use

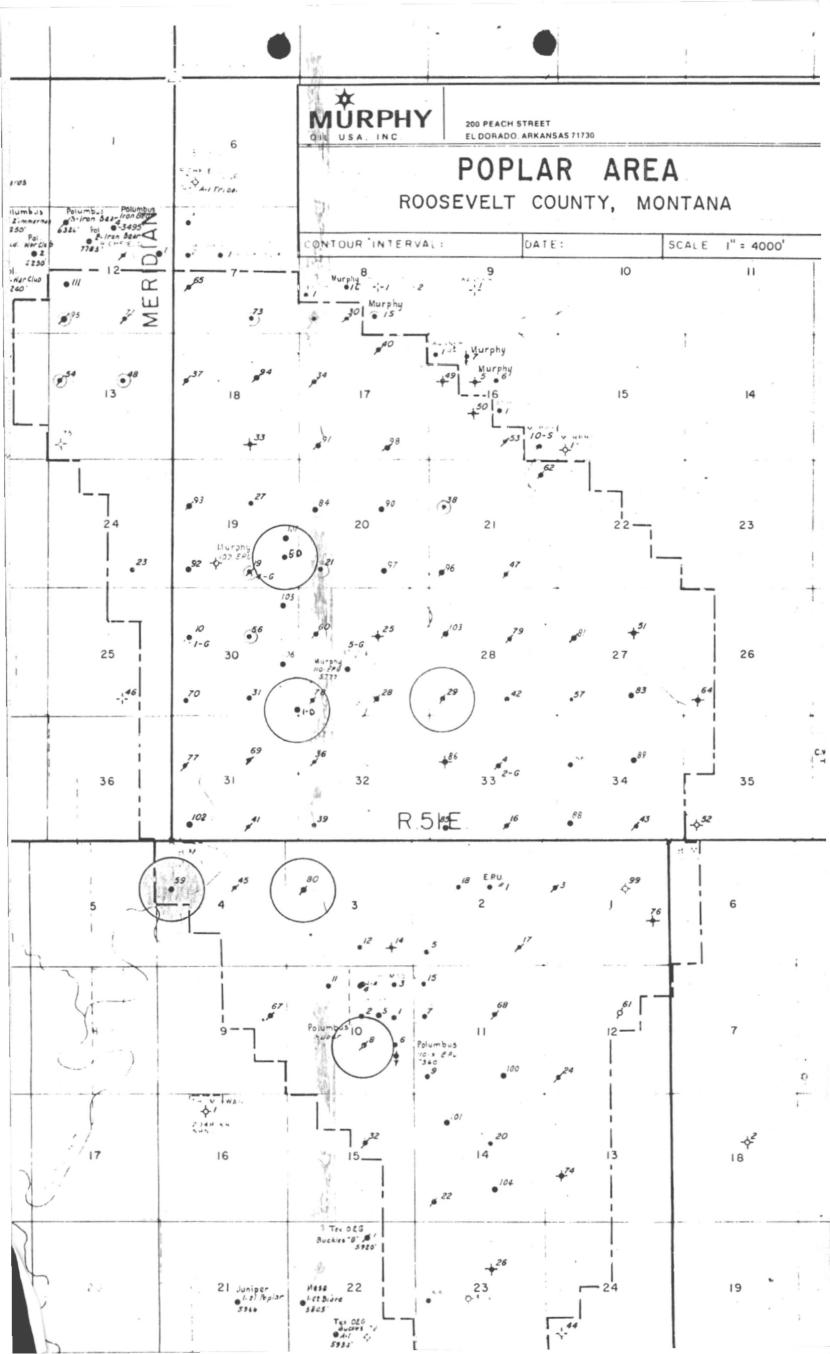
- (1) Average Injection Volume 4500 Bbls/Day] Currently not in use. Maximum Injection Volume 6500 Bbls/Day]
- (2) Average Injection Pressure 650 psi] --- Currently not in use.

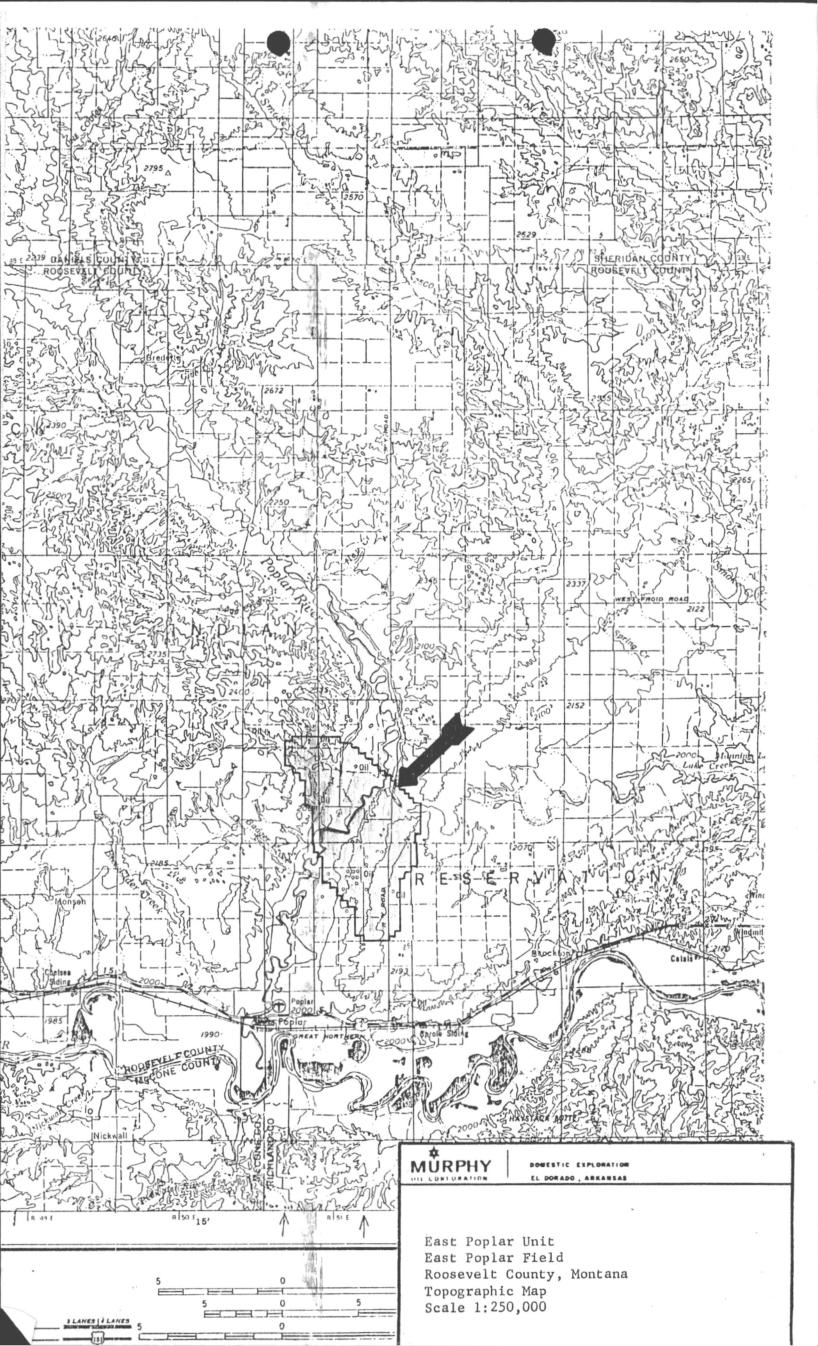
 Maximum Injection Pressure 800 psi]
- (3) Annulus Fluid Corrosion inhibited fluid
- (5) Source of Injection Fluid Mississippian Formation Fluid produced from the East Poplar Field
- (6) Well is not currently used for salt water disposal
- M. Schematics Attached
- Q. Plugging and Abandonment Plan EPA Form 7520-14 is attached
- R. Necessary Resources

See attached financial statement

U. Description of Business - EPU Well No. 59-D is used to dispose of part of the produced salt water from the East Poplar Unit wells. The salt water is separated from the produced fluid and comes to the disposal facility at SWD Station No. 1 through closed flowlines. The salt water is held in the salt water storage tanks until the salt water disposal pumps are engaged through automatic level switches. The salt water disposal pumps dispose of the salt water into the tubing of the wellbore and then into the formation.

The produced fluids are mixed in the flowlines and the resulting final TDS is approximately 130,000 TDS.





EPU #59-D Subsurface Well Design

145.85' of 13 3/8", 48#, H-40, 8rd., cemented to surface

948.83' of 9 5/8", 36# cemented to surface with 400 sacks

Set tubing with packer at 3160'

Block squeeze 3194'-3196', 250 sacks cement

Perforations at 3337'-3365', 3290'-3330', 3264'-3276'

Block squeeze 3400'-3402' with 200 sacks

5741.36 of $5\frac{1}{2}$, 15.5 cemented with 300 sacks

Note: Design is not to scale

FROM

MURPHY CORPORATION EL DORADO, ARKANSAS

June 22, 1961

P. O. Box 547
Poplar, Montana

United States Geological Survey
P. O. Box 1435
Billings, Montana

Attention: Mr. Hillary A. Oden

Gentlemen:

Attached are four copies of Supplementary Well History on East Poplar Unit Well No. 59.

If this meets with your approval, please return one copy to this office.

Very truly yours,

MURPHY CORPORATION

M. T. James
Field Production Superintendent

MTJ:pm Attachments

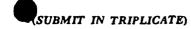
cc: With attachment

咖啡生。。

Harold Milam - Denver Leroy Duncan - El Dorado

التحار المحافظة الأدام والرماني الرمي المسهر الأميأ أأن والمسام

RSIE



UNITED STATES DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY



SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL	SUBSEQUENT REPORT OF WATER SHUT-OFF
NOTICE OF INTENTION TO CHANGE PLANS	SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING
NOTICE OF INTENTION TO TEST WATER SHUT-OFF	SUBSEQUENT REPORT OF ALTERING CASING
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL	SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR.
NOTICE OF INTENTION TO SHOOT OR ACIDIZE	SUBSEQUENT REPORT OF ABANDONMENT
NOTICE OF INTENTION TO PULL OR ALTER CASING.	1
NOTICE OF INTENTION TO ABANDON WELL	Report of Conversion to Disposal
	Well

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

		June 11,	, 1981
Well No. 59 is located	1911 ft. from [N] line and	732 ft. from $\binom{\mathbb{R}^n}{W}$ line of sec	4
	26R 51R	N.P.M.	
(4 Sec. and Sec. No.) East Poplar Field	(Twp.) (Range) Roosevelt	(Meridian) Hontana	•
(Field)	(County or Bubdivision)	(State or Territory)	

The elevation of the derrick floor above sea level is 1998 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, coment-. ing points, and all other important proposed work)

SEE ATTACHED SHEETS

I understand	I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.						
Company	Hurphy Corporation	······································					
	P. O. Box 347						
	Poplar, Montana	By					
		Title Field Production Superintendent					

June 15. 1941 Lease and Well East Popler Unit Well No. 59 Field Bast Poslar County Roosevelt State Montana Well Location SW NW Section 4, TREN, R515 Status Prior to Present Job: Cate Completed August 8, 1955 (Salt Water Disposal) Date of Last Workover Ammet 18, 1959 TD 5756' PBTD 5634' Injection Zone B Zone of the Madison Formation Perforations 5600'-5514' and 5621.5'-3628' lummlative Injection 3,303,928 thru May 31, 1961 Justification for Workover: To convert to salt water disposal well to dispose of EPU salt water: Curry of Workever: 5634' PBTD. Moved in pulling unit to complete as a Bokota liby control well. Pulled the to 5-31-51 well. Pulled the to remove Baker shal cosy. Ran the with Debar full bore pkr and DR plug. Set DR plug and test same u/20000. Held C.K. Spot 3 bbls gel on ER plug. Pulled cbg to 32981. Part for block squeeze - 3400' to 3402' with Wireline's through tog gun, 4 holes per ft. Shut well in overnight. 5634' PBFD. Tast csg and BCP w/15000, held. Squassed perf 3400'. [-1-61 3402' w/50 am reg cmt, ER-4 retarder added. Broke formation w/cmit.

- 6-1-61 5634' PBTD. Test csg and BCP w/15005, held. Squeased perf 3400'.
 3402' w/50 sm reg cmt, ER-4 retarder added. Broke formation w/8007.
 Ran 10 bbls fresh wtr sheed of cmt. Pmpd 50 sm cmt cut in formation. Hax press 4005, would not hold. Cleared tool w/4 bbls wtm and let set 5 hrs. Squeeze \$2 w/50 sm reg cmt, HR-4 retarder added.

 Broke formation w/5 bbls fresh wtr at 10005. Pmpd 50 sm cmt out in formation, max press 8005, would not hold. Cleared tool w/4 bbls wtr and let set 5 hrs. Squeeze \$3 w/50 sm reg cmt, HR-4 retarder.
- coded. Broke formation w/5 bbls fresh wer at 1400%. Fumped 50 and cont out in formation. Staged last 5 bbls out for 2 hro and 20 mins. Max press 1400%, whuld not hold. Cleared tool w/4 bbls wer and lat set overnight.
- 6-2-61 3375' PBTD. Squeeze #4 w/50 sx reg cmt, HR-6 retarder added: Broke formation w/5 bbls fresh wtr at 2200#. Squeezed 37 sm cmt out in formation. Man squeeze press 2000#, held 0.% Reversed out 13 sx cmt. Let cmt set 4 hrs and test w/1500#, held 0.%. Perf 3194' to 3196' for block squeeze above Dakota sand with Wireline's through the gum, 4 heles per ft. Set Baker full bors phr at 3180'. Broke



formation w/f bblo fresh wir at 12000. Squeeze yerf 3190 to 3190' w/50 on upg cmt, AR-0 returder added: Empd 50 on ont out in formation. Well circ out 9 5/8" surf cog. Man yease 800v. Would not hold. Cleared tool w/4 bbls wim. Let cmt est over-night.

- 6-3-61 3375' FBED. Squeeze \$2 on perf 3194'-98' w/30 sm regions, WR-4 retarder added. Eroke formation w/5 bblo fresh upr at 22009. Squeezed 32 sm cut out in formation. Hum squeeze press \$400%. Held O.K. Revewed out 18 sx cut. Pulled the and removed Bakom full born pkr. Ran the w/4 3/4" bit. Drid out cut from \$100' to \$100'. Ran the to 3375' and circ until clean.
- 6-4-61 3375' PBTD. Tasted top squazze 3194'-96' w/14000, would not held.

 Made trip and ran retrievable full bore pkr sat at \$174'. Squasse \$3 on perf 3194'-96' w/50 sx reg cut with HR-4 petander added.

 Squessed 43 sx into formation. Staged lost 10 sx. Non precs 33000, held. Reversed out 7 sx. Tosted w/15000. After revorting make trip for bit.
- 5-5-61 3575' FBMD. Drld out med hard out 3170' and 3195'. Fraction tapted squeece broke at 1450%. Pump in at 1270%. Hade bring for plan. Squeeze \$4 perf 3194'-95'. Flat set no 3170' . Beside #/ 3500%. Squeezed w/100 ax reg out with HRAA added. 95 ship formation. Max precs 4000%, held. Her out 5 3h. Job complete at 3:00 P.M., 5-4-61.
- 6-6-11 3306' PBTD. Tested squeeze job w/17508, helf 1.2. Pailed tog Perf with Wireline dyna jet cog gun 3337' to 3355'; 1290 up Utus, 3264' to 3276'; 4 SPF. Ran Guiberson pkr on 2 7/3" thg, set planat 3150'. Swab tested 2 hrs. Well started flowing. Chlorideo 39,000 ppm. Closed well in. Rig down pulling unit.
- 5-7-61 3365' FBYD. W.L. equals 3375' thg. Attempted to least down with salt with station pumps. Would not break at 14006. The leaded 7.25' below RES at 3149.45'.
- 6-3-31 3365' PETD. Injecting into the Bakota sand bt the rate of 3389 BPD at 940 psi. Broke formation with salt uto at 2000 psi at tuto of 5 BPM. Acidized w/1500 gals mad soid and 250 plugging balls. Nam injection wate:

10,030 BPD at 1300 psi w/Dowell twin pump 7,200 BPD at 1500 psi w/Bowell twin pump 5,760 BPD at 1200 psi w/Dowell twin pump 4,320 BPD at 975 psi w/Dowell twin pump 3,680 BPD at 850-940 psi w/l station pump

- 6-9-61 3365' PBTD. Inj at rate of 3809 BPD at 320 psi.
- 6-10-61 3365' PBTD. Swbd 3 hrs. Pulled swab from 2300'. Fluid Level standing at 1800' while swbg. Inj w/1 station pump at rate of 3809 RPD at 780 psi.
- 6-11-61 2305' FRYD. Inj war at the rate of 3309 byd of 730 pal.

Form 9-881 a (Feb. 1951)



(SUBMIT IN TRIPLICATE)

UNITED STATES DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY

Budget	Buresu	No.	42-R868.
Approve	al expire	s 12	-31-60.

Land Office Billings

Lase No. BLM-A-029305-A

Best Poplar

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL		SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR
NOTICE OF INTENTION TO SHOOT OR ACIDIZE	:	SUBSEQUENT REPORT OF ABANDONMENT
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY
NOTICE OF INTENTION TO ABANDON WELL		
convert to hisboart Reil	XX	

......(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

<u>.</u>	Agranus de la composição de la composiçã				- June 1.	, 19 61
Well No	59	is locate	ed 1911 ft.	from. [N] line		line of sec. 4
an ka	Section	4	28H	51 2	N.P.M.	•
	⅓ Sec. and Sec.		(Twp.)	(Range)	(Meridian)	••••
Eds	t Poplar	Field	1.4.	Roosevelt		Hontans
	(Field)	* (· 🥨 🙏 , 🕻 (Co	ounty or Subdivision)	(8	itate or Territory)

The elevation of the derrick floor above sea level is 1998 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, camenting points, and all other important proposed work)

Convert to disposal wall to dispose of EPU salt water. Set D2 plug in model D4 packer @ 5568. Spot jel w/corrosion inhibitor. Perforate and block squasze 3400-3402 and 3194-3196. Squasze through retrievable packer. Drill out 3194 (top) squasze. Perforate the Dakota sand 3342-3370 (28'), 3290-3330 (40'), and 3264-3276 (12'). Total 50'. Swab and water frac w/station pumps.

Temp. Verbal approval was obtained from Hr. Vatkins of the Montana Oil & Gas Commission on May 26, 1961, and from Hr. Oden of the U.S.G.S. on May 26, 1961. Application for a hearing was made to the Montana Oil & Gas Commission on May 26, 1961.

	第47 人,这 这 大學 # 34	
l understand	that this plan of work must receive approval in writing	by the Geological Survey before operations may be commenced.
Company	Murphy Corporation	
Address	P. O. Box 547	
,	Poplar, Montana	By Mild former
		Title Pield Production Superintendent

Form No. 2 GENERAL RULES 201, 202, 213, 216, 219, 233.1

(SUBMIT IN QUADRUPLICATE)

NOTICE! THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE COMMISSION.

OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF MONTANA BILLINGS OR SHELBY

Poplar id) M.P.H (Meridian)
. Poplar
- ,=
- ,=

-
[

READ CAREFULLY

DETAILS OF PLAN OF WORK

READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK

RESULT

Convert to disposal well to dispose of EPU sait water. Set DR plug in model DA packer @ 5568. Spot jel w/corrosion inhibitor. Perforate and block squeeze 3400-3402 and 3194-3196. Squeeze through retrievable packer. Drill out 3194 (top) squeeze. Perforate the Dakota sand 3342-3370 (28'), 3290-3330 (40'), and 3264-3276 (12'). Total 80'. Swab and water frac w/station pumps. Temp, verbal approval was obtained from Hr. Watkins of the Montana Oil & Gas Commission on May 26, 1961. Application for a hearing was made to the Montana Oil & Gas Commission on May 26, 1961.

Temp. verbal approval received from Mr. Oden, U.S.G.S., May 26, 1961.

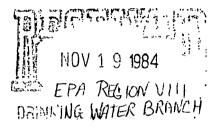
Approved subject to conditions on reverse of form	Company MURPHY CORPORATION
Date	By MILY Councy
Ву	Title Field Production Superintendent
Title District Office Agent	Address Box 547, Popler, Hontana
District Office Agent	

NOTE:-Reports on this Form to be submitted to the District Agent for Approval in Quadruplicate.



200 PEACH STREET EL DORADO, ARKANSAS 71730

November 16, 1984



Mr. Angus Campbell United States Environmental Protection Agency Region VIII 1860 Lincoln Street Denver, Colorado 80295-0699

Underground Injection Control (UIC) Permit Application for: East Poplar Field Well Nos. 1-D, 5-D, 8-D, 29-D, 59-D, 80-D

Dear Mr. Campbell:

This is to confirm the November 16 approval by telephone of the extension of the filing deadline to December 10, 1984 of information requested by Mr. Max Dodson's letter concerning deficiencies in our East Poplar Field UIC permit applications.

We will answer the deficiencies by the December 10, 1984 deadline. Your cooperation in this matter is appreciated.

Yours very truly,

Sidney W. Campbell

Sr. Petroleum Engineer

SWC/ac



MÜRPHY

200 PEACH STREET EL DORADO, ARKANSAS 71730

July 31, 1984

AUG 5 1004

L' (..., 'AL.).

Mr. John F. Wardell, Director Environmental Protection Agency Region 8, Montana Office Federal Building 301 S. Park, Drawer 10096 Helena, Montana 59626

Dear Mr. Wardell:

We have received your request for permit applications on our East Poplar Unit salt water disposal wells. You have asked that these be filed by July 30, 1984. Based on our current schedule it appears that the applications cannot be completed by this date and it is my understanding that Mr. Bill Engle of your office has given our Mr. Sidney Campbell approval to extend the deadline for applying to August 31. We would appreciate your confirming that the filing deadline of August 31, 1984, is satisfactory.

As you have suggested, we currently plan to file permit applications for all of our salt water disposal wells by the August 31, 1984, date. Your cooperation in this matter is appreciated.

Yours very truly,

Alvin W. Simpson

Manager of Operations

AWS/ac

cc: Mr. Ray Reede Murphy Oil USA, Inc. Poplar, Montana

Anthorn Constitution

AUS 0 6 1984

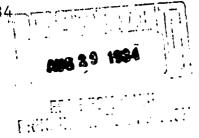
MONTANA OFFICE





200 PEACH STREET

August 27, 1984



Chief, Drinking Water Branch U.S. Environmental Protection Agency (8WM-DW) 1860 Lincoln Street Denver, Colorado 80295

Dear Sir:

Enclosed are the applications requested by Mr. John F. Wardell, Director, Montana Office of the EPA.

The applications enclosed are for East Poplar Field, wells 59-D, 1-D, 5-D, 29-D, 8-D, and 80-D. There is a Murphy Oil Corporation Annual Report which is the financial statement referred to in each application.

We have indicated on each application the election of an individual well permit; however, we would like to request an area or field wide permit for the Dakota (Fall River) and for Judith River zones.

We hope the applications are complete for permitting procedures; however, if you have any questions please contact Mr. Sidney W. Campbell at (501) 862-6411. Also we would like to file applications on our other fields at a later date. Please let us know when these need to be filed.

Yours very truly,

Alvin W. Simpson

Manager of Operations

Alvin W. Simpson/SwC

AWS/ac

cc: John F. Wardell

Ray Reede



UIC	6	EP/	4	(Colle	PERI	UND IN. API e author ections 142	PLICA	TION e Safe L	l Drinking		U	MTS	IPE-	00 25		T/A	C
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A. Clas (enter co			Type(s) r code(s))	C. If cla	ss is "oth	er" or type	is code '	c, expla	in	D. I	Number	of wells	per ty	pe (if area	permit)	2000	4.20
11-D																	
X. LOCA	TION OF	WELL	OR APP	ROXIMAT	E CENTER	OF FIELD	OR PROJ	ECT		Complete A		X. INDIA	ANIAN	NDS (Mark	***1		
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app	ropriate r applic	e. Atta	ch maps	where	require	d. List att	tachme	nts by	letter	which	are a	pplicab	le an	d are inc	cluded w	vith	
-	IFICATIO	Local	and the same	The Same	The Flore	es trime	13 Am										
		No. of Concession, Name of Street, or other Persons, Name of Street, or ot	A.C.	CONTRACTOR OF THE PARTY OF THE	C I		Mark Comment				7.74				-		
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EPU #59-D

A. Fixed Radius of 1/4 Mile
No wells within area of review

E. Name and Depth of USDWs (Class II)

Depth 86' Name Tertiary Sand Local Name Unknown

G. Geological Data

Zone Upper	Name Skull Creek	Description Gray Shale w/	Depth 2904±	$\frac{\text{Thickness}}{170^{\pm}}$	Frac Pressure Unknown
Confining		Traces of Red			
•		.Silt	•		
Injection	Dakota	White, Fine Grain, porous Sandstone	3070±	300±	Unknown
Lower	Fuson	Dark Gray Shale	3570±		Unknown

H. Operating Data - Currently Not in Use

- (1) Average Injection Rate 4500 Bbls/Day Maximum Injection Rate - 6500 Bbls/Day
- (2) Average Injection Pressure 650 psi Maximum Injection Pressure - 800 psi
- (3) Annulus Fluid Corrosion inhibited fluid
- (5) Source of Injection Fluid Mississippian Formation Fluid produced from the East Poplar Field
- Q. Plugging and Abandonment Plan EPA Form 7520-14 is attached
- R. Necessary Resources

See attached financial statement

U. Description of Business - Murphy Oil USA, Inc. is an oil and gas Exploration and Development Company with refining and marketing assetts.

SEPA		PLUG	GIN		WASHINGTON	1. DC 20460 ANDONI	MENT PL	_AN		
NAME AND ADDRESS OF FACILITY						ADDRESS OF	_			 -
Murphy Oil USA, Inc.					1	021 1104	T			•
Poplar, Montana	•				7. Oil USA, Inc. each St., El Dorado, AR 71730					
LOCATE WELL AND OUTLINE UNIT ON		STATE	C	YTNUC				PERMIT	NUMBER	
SECTION PLAT - 640 ACRES		MT			evelt					··
			URFACE LOCATION DESCRIPTION						F.O.F.	
N .			SW		NW 14 SECTI		TOWNSHIP	N AND DRILLIN	GE 58E ·	
								ANTER SECTIO	IN AND DAILLIN	IG UNII
						ine of quarter solit if quarter section				
		and 12			W _''_ Line o		in .	MELL ACTIVITY		
					OTRONEATI	OIV	· WELL ACTIVITY			
w	E	☐ Individ		-			CLASS I			
		□ Ruk					3ŒBrine l	Disposal	•	
		Number	-6146-	11_				ced Recover		
		Number	OT VVB				CLASS II	arbon Stora	ge	
								•		
							1	5 0 -		
S		Lease N	<u>siwe</u>	EPU	J		Well Numb	er 59-I)	
CASING AND TUBING REC	ORD AF	TER PLUGG	ING			METHOD (OF EMPLACEM	ENT OF CEME	NT PLUGS	
						The Ball	ance Method			
SIZE WT(LB/FT) TO BE PUT IN WELL	FN TO 8				OLE SIZE	_	mp Bailer Me			
13 3/8 48#		139.85	_		7년		o-Plug Metho			
9 5/8 36#		942.83	3	12	<u>2</u> ½	Other	•			
5½· 15.5	- -	5735.36		8	3/4					
·		—							 	
CEMENTING TO PLUG AND ABANDON			PLUC	G #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (nches)		*5½		5½	9 5/8		-	<u> </u>	
Depth to Bottom of Tubing or Drill Pipe (ft.)			3214	4	10					<u> </u>
Sacks of Cement To Be Used (each plug) Slurry Volume To Be Pumped (cu. ft.)			2		10 10	10 10				
Calculated Top of Plug (ft.)			319	5	10	20			-	
Measured Top of Plug (if tagged ft.)			31.7.	_	10	2.0			 	
Slurry Wt. (Lb./Gal.)				-						
Type Cament or Other Material (Class III)									 	İ
LIST ALL OPEN HOLE A	ND/OR	PERFORAT	ED INT	ERVAL	S AND INTERV	ALS WHERE C	ASING WILL BE	VARIED (If ar	ry)	· -
From		То				From			To	
3337 33	65									
	30					•				
3264 32	76 ·									
			_					ļ		
Estimated Cost to Plug Wells *Cast iron	ם ם	,	h =	0.0.5	1 227/1			<u></u>		· · · · · · · · · · · · · · · · · · ·
• Odst Iton						5k" 000	annuluc			
10 sacks	center	ut Wll.	r be	hmil	hea aomu	Jo₂ csg	amuutus			
- .										
								_		
·			CE	RTIF	ICATION					
I certify under the penalty	of law	that I h	ave p	erso	nally exam	ined and a	m familiar	with the i	nformation	, .
submitted in this docume										
immediately responsible fo										
and complete. I am aware t										
the possibility of fine and i							<u> </u>			
NAME AND OCCIONAL TITLE (8/		Leve	NATUR							
NAME AND OFFICIAL TITLE (Please type or print) Alvin W. Simpson		SiG	INATUR	16				DATE SI	GNED	
Manager of Operations										
PA Form 7520-14 (3-84)										

WASHINGTON, DC 20460

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY Form Approved WASHINGTON, DC 20460 OMB No. 2040-0042 Approval expires 9-30-86 COMPLETIC REPORT FOR BRINE DISPOSAL HYDROCARBON STORAGE, OR ENHANCED RECOVERY WELL NAME AND ADDRESS OF EXISTING PERMITTEE NAME AND ADDRESS OF SURFACE OWNER Submarginal Land Murphy Oil USA, Inc. **BTA** 200 Peach St. EPU 59-D Poplar, Montana El Dorado, AR 71730 STATE COUNTY PERMIT NUMBER LOCATE WELL AND OUTLINE UNIT ON Roosevelt SECTION PLAT - 640 ACRES SURFACE LOCATION DESCRIPTION 4 OF SW 4 OF NW 4 SECTION TOWNSHIP 20N LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT Surface $\frac{1911}{R}$ from (N/S) $\frac{N}{N}$ Line of quarter section and 732ft. from (E/W) W Line of quarter section WELL ACTIVITY TYPE OF PERMIT X Brine Disposel M Individual Estimated Fracture Pressure W Area of Injection Zone Unknown ☐ Fohanced Recovery Hydrocarbon Storage Number of Wells . Anticipated Daily Injection Volume (Bbis) Injection Interval Maximum Feet to Feet Not In Use 3342 Anticipated Daily Injection Pressure (PSI) Depth to Bottom of Lowermost Freshwater Formation (Feet) Bud Lien's Deepest Well Maximum is 86' Type of Injection Fluid (Check the appropriate block(si) Lease Name Well Number EPU Salt Water Brackish Water Fresh Water 59-D Liquid Hydrocarbon Other Name of Injection Zone Dakota Sand Date Well Completed Permeability of Injection Zone Date Drilling Began 8-8-55 6-23-55 Data Not Available Date Drilling Completed Porosity of Injection Zone 7-16-55 Data Not Available CASING AND TUBING CEMENT Wt/Ft - Grade - New or Used OD Size Death Sacks Class Depth Bit Diameter 200 150' 48# H-40 New 145.85 13 3/8. 175 G? 36# H-40 New 948.83 400 965 124 9 5/8 15.5 J-55 New 5741.36 300 8 3/4 1/2 G? 5754 3400 450 \overline{G} ? Block Squeeze 3160' 6.5# J-55 New 2 7/8 INJECTION ZONE STIMULATION WIRE LINE LOGS, LIST EACH TYPE Materials and Amount Used Interval Treated Log Types Logged Intervals 1500 gals mud acid 3264-3365 962' - 5753' Elect Survey 2" 2000'-5753' Elect Survey 5" 2000'-5751' Microlog 5" 5000'-5751 Microlog 25" Complete Attachments A - E listed on the reverse.

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE (Please type or print)		DATE SIGNED
Alvin W. Simpson	· I	5 7 2 5.0
Manager of Operations		
Hallager of operations		

ATTACHMENTS

- A. Present a schematic or other appropriate drawings of the surface and subsurface construction details of the well as built.
- B. Describe the method and results of mechanical integrity testing.
- C. Present the results of that portion of those logs, tests, and cores which specifically relate to (1) underground sources of drinking water and the confining zone(s) and (2) the injection
- D. Present the status of corrective action on defective wells in the area of review.
- E. Provide to EPA, with the completion report, one final print of all geophysical logs run.

EPA Form 7520-10 (2-84) Reverse



UNITED ATES ENVIRONMENTAL PROTECTION AGENCY

⊕ EPA	COMPLETIO		FOR INJECTION	ON WELLS	
			TIVE INFORMATION		
1. Permittee Murphy Oil USA, Inc	2.				
Address (Permanent Mailing P. O. Box 547, Pop 200 Peach Street, I	lar, Montana 5925	5 (Distri	.ct Office)		
				•	
2. Operator					
Murphy Oil USA, Inc Address (Street, City, State,	and ZIP Code)		·		
Same as above					
3. Facility Name East Poplar Unit	59-D			Telephone Num District Home Offi	Office 406-768-3611
Address (Street, City, State,	and ZIP Code)			<u>'</u>	
Murphy Oil USA, Inc P. O. Box 547 Poplar, Montana 592		ce)			
4. Surface Location Description	n of Injection Well(s)				
State Montana			Roosevelt		
1/4 of	1/4 of			1/4 section	
		SW ·		NW 4	
Township			Range		
28N		•	51E	•	
Feet from (N/S)			Line of quarter section	on and	·.
1911			N		
Feet from (E/W)			Line of quarter section	on	
732'			w		
Submit with this Completion	n Form the attachments list	ted in <i>Attachm</i>	nents for Completion For	rm.	
		CERT	TFICATION		
submitted in the immediately re and complete. I	he penalty of law that his document and all sponsible for obtainin am aware that there a of fine and imprisonm	attachmen g the inforr are significa	ts and that, based mation, I believe tha ant penalties for sub	on my inquiry of at the information	those individuals n is true, accurate,
NAME AND OFFICIAL TITLE (Plea		SIGNATURE			DATE SIGNED

Manager of Operations

Attachments to be submitted with the Completion report:

I. Geologic Information

- 1. Lithology and Stratigraphy
- A. Provide a geologic description of the rock units penetrated by name, age, depth, thickness, and lithology of each rock unit penetrated.
- B. Provide a description of the injection unit.
- (1) Name
- (2) Depth (drilled)
- (3) Thickness
- (4) Formation fluid pressure
- (5) Age of unit
- (6) Porosity (avg.)
- (7) Permeability
- (8) Bottom hole temperature
- (9) Lithology
- (10) Bottom hole pressure
- (11) Fracture pressure
- C. Provide chemical characteristics of formation fluid (attach chemical analysis).
- D. Provide a description of freshwater aquifers.
- (1) Depth to base of fresh water (less than 10,000 mg/1 TDS).
- (2) Provide a geologic description of aquifer units with name, age, depth, thickness, lithology, and average total dissolved solids.

II. Well Design and Construction

- 1. Provide data on surface, intermediate, and long string casing and tubing. Data must include material, size, weight, grade, and depth set.
- 2. Provide data on the well cement, such as type/class, additives, amount, and method of emplacement.
- 3. Provide packer data on the packer (if used) such as type, name and model, setting depth, and type of annular fluid used.

- 4. Provide data on centralizers to include number, type and depths.
- 5. Provide data on bottom hole completions.
- 6. Provide data on well stimulation used.

III. Description of Surface Equipment

1. Provide data and a sketch of holding tanks, flow lines, filters, and injection pump

IV. Monitoring Systems

- 1. Provide data on recording and nonrecording injection pressure gauges, casing-tubing annulus pressure gauges, injection rate meters, temperature meters, and other meters or gauges.
- 2. Provide data on constructed monitor wells such as location, depth, casing diameter, method of cementing, etc.

V. Logging and Testing Results

Provide a descriptive report interpreting the results of geophysical logs and other tests. Include a description and data on deviation checks run during drilling.

- VI. Provide an as-built diagrammatic sketch of the injection well(s) showing casing, cement, tubing, packer, etc., with proper setting depths. The sketch should include well head and gauges.
- VII. Provide data demonstrating mechanical integrity pursuant to 40 CFR 146.08.
- VIII. Report on the compatibility of injected wastes with fluids and minerals in both the injection zone and the confining zone.
- IX. Report the status of corrective action on defective wells in the area of review.
- X. Include the anticipated maximum pressure and flow rate at which injection will operate.

EPA Form 7520-9 (2-84) Reverse

YAPUNCICH, SANDERSON & BROWN

A

PHONE 252-6325

LABORATORIES

P. O. BOX 593 13 NO

BILLINGS, MONTANA 59103

anto

Murphy 011 Corporation
200 Jefferson Avenue
El Dorado, Arkanses 71730

Jile limit of the plant of the part of the

NO.

TERMS: NET 30 DAYS

LAB. NO. SERVICE AMOUNT Routine Water Analysis, 5 Samples @ \$35.00/Sample 175.00 12700 25.00 Evaporation for Salt, 5 Samples 200.00 Madison Formation North End of East Poplar Unit, Roosevelt County, Montana 1. EP Unit No. 48 Wellhead Temperature 130°F C Zone EP Unit No. 21 Wellhead Temperature 195°F C Zone EP Unit No. 84 Wellhead Temperature 195°F C Zone Composite Sample Well No. 19 Wellhead Temp. 155°F A Zone Well No. 38 Wellhead Temp. 175°F A Zone Well No. 95 Wellhead Temp. 100°F A Zone Composite Sample "8" Zone Well No. 54 Well No. 56 Wellhead Temp. Received 2-26-76 Wellhead Temp. Ordered by O.Paul Doyle Well No. 73 Wellhead Temp.

NO FURTHER STATEMENT WILL BE RENDERED UNLESS REQUESTED
SPECIALIZING IN CORE, WATER, GAS, CRUDE OIL, REFINED PETROLEUM PRODUCTS ANALYSES AND FIELD ENGINEERING SERVICES



P. O.-BOX **59** 59103 BILLINGS MONTANA

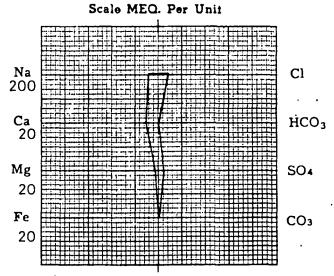
13 N. 32HD 6T.

WATER ANALYSIS REPORT

Lab. No. 12700-1

Well NoE Formation \(^1\) Operator\(^1\)	Sample Wellhead Temp	ne poration erature 130	Location Depths	Date Sampled Date Analyzed
Constituent	PPM	MEQ.	MEQ. %	Total Solids in Parts per Million
Sodium	9,673	420.74	43.15	By evaporation
Calcium	1,002	50.00	5.13	After ignition
Magnesium	204	16.80	1.72	Calculated 28,455
Sulfate	1,223	25.44	2.61	pH 7.3
Chloride	16,170	455.99	. 46.76	Specific Gravity@ 60°F 1.017
Carbonate	. 0	. 0.00	0.00.	Resistivity @ 68°F
Bicarbonate	≥ 372	6.10	0.63	ohms/meter 0.25
Chloride as	NaCl 25,664	PPM.	Total Solids Fro	m Resistivity as NaCl 27,791 PPM.

NOTE: Sodium and potassium reported as sodium. MEQ. milliequivalents per liter. PPM sparts per million (milligrams per liter). 1 PPM soutvalent to 0.0001%



P. O. BOX 593

BILLINGS, MONTANA

13 N. 32HD ST.

WATER ANALYSIS REPORT

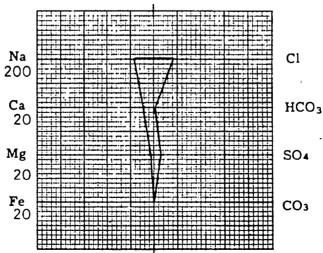
Lab No. 12700-2

Well No. EP Formation Ma Operator Mur DST No Other Data W	Unit No. 21 dison "C" Z phy Oil Cor Sample ellhead Iem	one poration perature 19	Depths	
Constituents	PPM	MEQ.	MEQ. %	Total Solids in Parts per Million
Sodium	19,261	837.80	46.88	By evaporation
Calcium	842	42.00	2.35	After ignition
Magnesium	168	13.83	0.77	Calculated 52,317
Sulfate	1,486	30.92	1.73	pH
Chloride	30,380	856.72	47.93	Specific Gravity@ 60°F 1.039
Carbonate	. 0	0.00	0.00	Resistivity @ 68°F
Bicarbonate	366 .	6.00	0.34	ohms/meter 0.16
Chloride as Na	cı 50,097	PPM. ·	Total Solids From I	Resistivity as NaCl 51,522 PPM.

NOTE: Sodium and potassium reported as sodium. MEQ. milliequivalents per liter. PPM : parts per million (milligrams per liter). 1 PPM equivalent to 0 00015

WATER ANALYSIS PATTERN

Scale MEQ. Per Unit



P. O. BOX 59 59103 BILLINGS, MONTANA

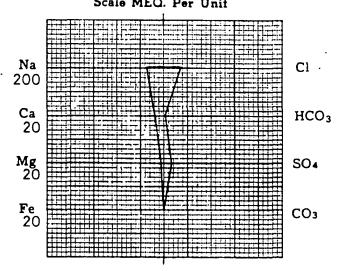
13 N. 32ND ST.

WATER ANALYSIS REPORT

Lab. No. 12700-3

Well No. EP Formation Mac Operator Mu DST No. Other Data We	Unit No. 84 dison "C" Z rphy Oil Co _ Sample llhead Temp	one rporation erature 155	Depths	Poosevelt Date Sa Date An	mpled	
Constituents	PPM	MEQ.	MEQ. %	Total So	lids in Paris per Mil	llon
Sodium	17,485	760.54	46.74	By ev	aporation	
Calcium	802	40.00	2.46	After	ignition	<u>.</u>
Magnesium	156	12.85	0.79	Calcu	lated 47.66	<u>6</u>
Sulfate	1,585	32.97	2.03	рН 7.9	·	
Chloride	27,440	773.81	47.57	Specific Gravi	ty@ 60°F 1.03	6
Carbonate	0	0.00	0.00	Resistivity @	68°F	
Bicarbonate	403	6.60	0.41		/meter 0.16	
Chloride as NaC	45,249	PPM.	Total Solids Fro	m Resistivity as NaC	1_46,817P	PM.

NOTE: Sodium and potassium reported as sodium. MEQ. = milliequivalents per liter. PPM = parts per million (milligrams per liter). 1 PPM equivalent to 0.0001%



P, O. BOX **593** 59103 BILLINGS, MONTANA

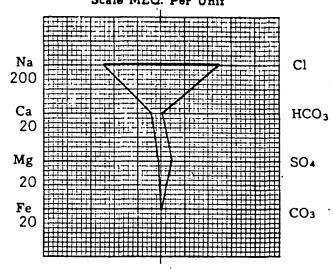
13 N. 32NO BT.

WATER ANALYSIS REPORT

Lab. No. 12700-4

Field Nor	th tha of t	<u>ast Poplar un</u>	It County RC	osevelt State Montana
Well No*			Location	<u> </u>
Formation Ma	dison "A" Z	one		
Operator Mu	<u>rphy Oil Co</u>	rporation	•	Data Sampled
	Sample			Date Analyzed 3-01-76
Other Data*We	11head Temp	erature 155 ^o F	Well No.	19
. *We	11head Temp	erature 175 ⁰ F	Well No.	38 .
*We	llhead Temp	erature 100°F	Well No.	95
C1	ear, colorl	ess water; H	S present	
Constituents	PPM	MEQ.	MEQ. %	Total Solids in Parts per Million
	·	•	•	•
Sodium	57,198	2,487.96	49.00	By evaporation
Calcium	802	40.00	0.79	After ignition
				.10
Magnesium	132	10.87	0.21	Calculated 148,715
		16.10		
Sulfate	. 2,221	46.19	0.91	pH_7.4
C 1.1.1	00 000	0 1.07 01	1.0.00	
Chloride	88,200	2,487.24	48.98	Specific Gravity@ 60°F 1.102
	•	0.00	2 22	
Carbonate	0	0.00	0.00	Postatulan @ COOP
.	222	5.10		Resistivity @ 68°F ohms/meter 0.065
Bicarbonate	329	5.40	0.11	onms/meter 3.003
Chloride as NaC	145,442	PPM. T	otal Solids From	Resistivity as NaCl 147,557 PPM.

NOTE: Sodium and potassium reported as sodium. MEQ.=milliequivalents per liter. PPM parts per million imilligrams per liter). I PPM equivalent to 0.0001%



O. BOX 593

BILLINGS, MONTANA

I S N. SEND ST.

WATER ANALYSIS REPORT

Lab. No. 12700-5

Well No* Formation Mad OperatorMur DST No Other Data*W*w	lison "B" Zo phy Oil Cor Sample Mellhead Tem Mellhead Tem Mellhead Tem	poration	Location Depths Well N			
Constituents	PPM	MEQ.	MEQ. %	Total Solids in Parts per Million		
Sodium	83,699	3,640.67	47.17	By evaporation		
Calcium	3,607	180.00	2.33	After ignition		
Magnesium	469	38.53	0.50	Calculated 224,813		
Sulfate	755	15.70	0.20	pH 7.0		
Chloride	136,220	3,841.40	49.77	Specific Gravity@ 60°F 1.144		
Carbonate	0	0.00	0.00	Resistivity @ 68°F		
Bicarbonate	128	2.10	0.03	ohms/meter ³ 0.050		
Chloride as NaCl 224,627 PPM. Total Solids From Resistivity as NaCl 224,417 PP						

NOTE: Bodium and potassium reported as sodium. MEQ.=milliequivalents per liter. PPM=parts per million (milligrams per liter). 1 PPM equivalent to 0.0001%

